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| 09/928,349      | 08/14/2001  | Joong-Hyun Mun       | 06192.0263.NPUS00   | 6679             |

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| EXAMINER |
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| ART UNIT | PAPER NUMBER |
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2871

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/928,349

Applicant(s)

MUN ET AL.

Examiner

Julie-Huyen L. Ngo

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/19/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-50 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 12-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Response to Arguments with respect to the Restriction Requirement***

Applicant again elects with traverse the invention of Group II recited in claims 9-11 and alleged species that read on these claims is acknowledged.

The traversal is on the grounds that:

- 1) the restriction requirement appears to be based solely on a finding that the different inventions are patentably distinct, without any evaluation whatsoever made with respect to whether or not the inventions are "specifically different embodiments" as required in MPEP § 806.04(e).
- 2) The restriction requirement fails to provide any basis for finding that the restricted claims are mutually exclusive as required by MPEP § 806.04(f).
- 3) the restriction of claims 8-11 and 26-29 is not properly established as being directed to different mutually exclusive inventions. Further, in view of the similarity of elected claims 9-11, it would not be unduly burdensome for the remaining claims also to be examined in the present application.

Applicant's arguments filed on February 19, 2004 have been fully considered but they are not persuasive because claims 8-29 read on inventions of different species that are "specifically different embodiments", which meet the requirement in MPEP § 806.04(e), and the restricted claims recite mutually exclusive characteristics of different species that meet the requirement in MPEP § 806.04(f).

The restriction is repeated here below for clarification and to particularly point out that the claims are in fact recites the mutually exclusive of characteristics of different species/embodiments, which meet the requirement of "*one claim recites limitations which is under the disclosure are found in a first species but not in a second, while the second claim recites limitations disclosed only for the second species and not for the first*" as stated in the requirements of MPEP § 806.04(e) and in MPEP § 806.04(f).

#### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 8, drawn to a Liquid Crystal Display (LCD) comprising a pixel electrode with a first opening pattern and a common electrode with second opening pattern, classified in class 349, subclass 141.
- II. Claims 9-11, drawn to a color filter substrate for a liquid crystal display comprising first and second protrusions having different thickness formed on a **common electrode**, classified in class 349, subclass 106, 110 and 155.
- III. Claims 26-29, drawn to a Thin Film Transistor array substrate comprising an organic insulating pattern *having a protrusion pattern with a first thickness, and a flat portion with a second thickness* formed on a **semiconductor pattern**, classified in class 349, subclass 43 and 155.

- IV. Claims 12-19, drawn to a method for fabricating color filter substrate for a LCD comprising a first protrusion with a first thickness, and a second protrusion with a second thickness formed on a common electrode, classified in class 430, subclass 7.
- V. Claim 20, drawn to a method for fabricating a Liquid Crystal Display comprising a thin film transistor array substrate and a color filter substrate, classified in class 430 and 349.
- VI. Claims 21-25, drawn to a method for fabricating color filter substrate for a LCD comprising a protrusion and a polymer pillar of different height/width formed on a common electrode, classified in class 430, subclass 7.
- VII. Claims 30-38, drawn to a method for fabricating Thin Film Transistor array substrate comprising the steps of forming an organic insulating pattern having a protrusion pattern with a first thickness, and a flat portion with a second thickness formed on a semiconductor pattern, classified in class 438.

Inventions of groups IV-VII and group I-III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown:

(1) that the process as claimed can be used to make other and materially different product **or**

(2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)).

In the instant case the products as claimed can be made by another and materially different processes:

The product in group I can be made by another and materially different processes such as etching or patterning.

The product in group II can be made by another and materially different processes such as the processes recited in claims 15, 17 or 19 of group IV, and claim 21 of group VI.

The product in group III can be made by another and materially different processes such as the processes recited in claims 32, 34 or 38 of groups VII.

Further more, the invention as claimed in groups I-III read on specifically different embodiments with mutually exclusive characteristics underlined above in each group.

Applicant was further required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits since this application contains claims directed to the above set forth patentably distinct species of the claimed invention in groups I-III.

Since the inventions of groups I-VII are distinct for the reasons given above and have acquired a separate status in the art as shown by their recognized divergent subject matter, patentably distinct species, and are classified in different classifications, restriction for examination purposes as indicated is proper.

However, Applicant although traversed, fails to submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case as required in the restriction requirement mailed on September 8, 2003.

Therefore, it is burdened on the Examiner to exam ALL Groups of inventions for the reasons set forth above and the requirement is still deemed proper and is maintained.

Accordingly, claims 8 and 12-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention/Species, there being no allowable generic or linking claim.

### ***Response to Amendment***

Newly submitted claims 39-50 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 39-46 recite a liquid crystal display comprising:

- a thin film transistor (TFT) formed on the second insulating substrate, wherein the first protrusion comprises a first end formed on the common electrode and a second end formed on the TFT;
- a pixel electrode formed on a portion of the TFT; and
- a liquid crystal material formed between the first insulating substrate and the second insulating substrate.

Claim 47 recites a color filter substrate for a liquid crystal display of claim 9 further comprising a second insulating substrate arranged opposite the insulating substrate.

Claim 48 recites that the second substrate comprises:

- a thin film transistor (TFT); and
- a pixel electrode arranged on portion of the TFT

(Claim 49)

- a third protrusion and a forth protrusion

(Claim 50)

- the first protrusion has a first end arranged on the common electrode and a second end arranged on the TFT.

Since Applicant has received an action on the merits for the originally elected invention, i.e., the color filter substrate for a liquid crystal display. Applicant is to note that a color substrate does not comprise another or a second substrate and other features formed on the second substrate, since another substrate along with the insulating substrate would make up a display, which is a different invention than just a color filter substrate alone.

Therefore, the elected invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, newly added claims 39-50 along with the pending claims 8 and 12-38 are withdrawn from consideration as being directed to a non-elected invention/species. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Response to Arguments regarding the Applied Art***

Applicant's arguments filed February 19, 2004 have been fully considered but they are not persuasive.

Applicant's only arguments are following:



1) With respect to claim 9, Kurihara is directed towards a touch sensor using a resistive membrane comprising the second protrusion 32 that is not formed on the common electrode 25, and the convex shaped part 31 is not protrusion, rather, they are part of the touch sensor.

2) Claim 11 is allowable over the cited references for at least the similar reasons as discussed above with respect to claim 9. Kim fails to cure the deficiencies of Kurihara.

Examiner's responses are following:

1) Applicant is to noted that the position of the convex-shaped part 31 and the pillar-shaped spacer 105 in Kurihara device are not limit to one substrate, but can be formed on either the first substrate or the second substrate as disclosed in col. 4, lines 33-36 and col. 6, lines 40-45. Therefore, it would have been obvious for one of ordinary skill in the art to form the first 31/106 and second protrusions 32/105 on the common electrode 25 as taught by Kurihara. The convex shaped part 31/106 is a protrusion since it is protruded from the surface of the common electrode 25. Therefore, the recitation of claim 9 is fully met by the color filter substrate disclosed by Kurihara.

2) Since claim 9 is fully met by Kurihara, and it is well known and conventional in the art for a common electrode be formed of ITO for having transparency with high conductivity, as evidenced by Kim with an ITO common electrode 13 formed over the color filter 12 having black matrix 11 formed within. Kim cures the deficiencies of Kurihara. Therefore, the recitation of claim 11 is fully met by the color filter substrate disclosed by Kurihara in view of Kim.

Therefore, claims 9-11 are remain rejected and treat below:

***Priority***

Applicant is reminded that in order to obtain the benefits of the foreign filing date under 35 U.S.C. 119(a)-(d) of the Foreign application, Applicant should file a certified copies of said application as required by 35 U.S.C. 119(b).

***Specification***

The title of the invention as mended is still not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The abstract of the disclosure is objected to because it not clearly states which is new in the art to which the invention pertains as recited in the elected claims.

Correction is required. See MPEP § 608.01(b)

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 10, the recitation calling for "*the first and the second protrusions are formed with one or more of a photosensitive organic insulating layer, a photoresist film, and a silicon-based insulating layer*" is not described in the specification. According to the specification (third paragraph in page 21), which discloses, "*the organic insulating patterns 160 and 170 may be formed with a photosensitive organic insulating material, a positive or negative photosensitive material, or a silicon-based insulating material.*" This means that the first and the second protrusions are formed with ONLY one of a photosensitive organic insulating material, a positive or negative photosensitive

material, or a silicon-based insulating material. However, the recitation "one or more" is calling for more than one of the above mentioned material.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara et al. (US 6501529 B1).

With respect to claim 9, Kurihara teaches (col. 2, line 58 to col. 8, line 18, figures 8 and 9) forming a color filter substrate for a liquid crystal display, comprising:

- an insulating substrate 17;
  - a black matrix 22 formed on the insulating substrate;
  - a color filter 21 formed at the black matrix;
  - a common electrode 25 formed on the color filter 21; and
  - a first 31/106 protrusion and second protrusions 32/105 formed on the common electrode 25. Noted that the position of the convex-shaped part/first protrusion 31 and the pillar-shaped spacer/second protrusion 105 are not limited to one substrate, but can be formed on either the first or the second substrate as disclosed in col. 4, lines 33-36 and col. 6, lines 40-45.
- Therefore, it would have been obvious for one of ordinary skill in the art to

form the first 31/106 and second protrusions 32/105 on the common electrode 25).

- the first protrusion having a first thickness, the second protrusion having a second thickness, the second thickness being greater than the first thickness.

wherein

(Claim 10)

- the first and the second protrusions are formed with one or more of a photosensitive organic insulating layer, a photoresist film, and a silicon-based insulating layer.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara et al. (US 6501529 B1) as applied to claim 9 above and further in view of Kim et al. (US 6567144 B1).

Although Kurihara does not specifically disclose that the common electrode in their device is formed of indium tin oxide or indium zinc oxide (ITO), it is well known and conventional in the art for a common electrode be formed of ITO for having

transparency with high conductivity as evidenced by Kim with an ITO common electrode 13 formed over the color filter 12 having black matrix 11 formed within.

Therefore, it would have been obvious for one of ordinary skill in the art at the time the inventions was made to form the common electrode 25 in Kurihara device by ITO material for having transparency with high conductivity.

### ***Conclusion***

This application contains claims 8 and 12-50 that drawn to a nonelected invention with traverse in Papers submitted on October 8, 2003, and February 19, 2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


**Contact Information**

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

March 25, 2003



*Julie-Huyen L. Ngo*  
**Patent Examiner**  
Art Unit 2871